

AMENDMENTS TO THE SPECIFICATION:

Please replace the Title with the following:

**HEATING APPARATUS WITH ELECTRODE FOR THE CONDUCTIVE
HEATING OF MELTS**

Please amend the specification at page 1, line 4 as follows:

Description BACKGROUND OF THE INVENTION

1. Field of the Invention

Please add the following heading to the specification at page 1, line 12:

2. Description of Related Art

Please replace the paragraph beginning at page 2, line 26 with the following:

In addition to radiofrequency heating, it is also possible to use water-cooled electrodes for the conductive heating of melts. GB 644 463 describes a hollow electrode which is cylindrical in form or in some other form, can be made from metal and is provided in the interior with a coaxially arranged hollow body within which a cooling fluid circulates. GB 644,463 has furthermore disclosed a water-cooled platinum electrode which can only be operated effectively at substantially one thermal operating point. In this case, it must always be ensured that the platinum electrode is not damaged by overheating. However, since heating of the melt also presents a risk of damage to the platinum electrode, the coolant supplied will generally effect cooling which maintains a safe thermal distance below the temperatures at which the platinum can be damaged. However, as a result some of the heating power of the conductive electrodes is "cooled away" again and has to be compensated for by an increased supply of energy. The additional heating power is absorbed again by an increased cooling power, and the thermal safety margin represents an extremely unsatisfactory overall energy balance when using conventional cooled electrodes.

Please add the following paragraph at page 3, line 15:

DE 199 25 554 A1 describes a bottom electrode for metallurgical melting vessels, in which a cooling plate is arranged at a distance below the carrier plate which carries the contact elements. A cooling medium flows through the cooling space which is thereby formed; the cooling action of this cooling medium is intensified by cooling fins which are arranged in the cooling space and are welded to the carrier plate and preferably also to the cooling plate.

Please add the following heading to the specification at page 3, line 20:

BRIEF SUMMARY OF THE INVENTION

Please amend the paragraph beginning at page 16, line 4 as follows:

The invention is explained in more detail below on the basis of preferred embodiments and with reference to the appended drawings, in which identical reference symbols denote similar or identical parts. ~~In the drawing:~~

Please add the following heading to the specification at page 16, line 8:

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Please add the following heading to the specification at page 16, line 9:

DETAILED DESCRIPTION OF THE INVENTION